Remarks

Thorough examination by the Examiner is noted and appreciated.

The claims have been amended to be consistent with the Title of the invention.

No new matter has been added.

For example, support for the amendment is found in the Title of the Invention and at page 6 beginning with the first paragraph, in original claim 6, and in the Figures (Figures 1 and 2) including as interpreted by the Board of Patent Appeals and Interferences (see page 6, first paragraph) 9/13/2005.

Finality of Office Action

Applicants respectfully request Examiner withdraw the finality of his Office Action as **premature**. Since new rejections have been made of prior art not of record e.g., Church et al., after the reopening of prosecution following Appeal, Applicants respectfully request withdrawal of finality of rejection should Examiner conclude the claims are not in condition for allowance.

Applicants amended the claims in response to The Board of Patent Appeals and Interferences (BPAI) making a new rejection under Section 112, second paragraph. Thus the amendment to the claims should have reasonably been expected by Examiner in response to the decision of the BPAI and the amendments in no way necessitated the newly cited art or new grounds of rejection.

706.07(a) Final Rejection, When Proper on Second Action

Under present practice, second or any subsequent actions on the merits shall be final, **except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment** of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p). Where information is submitted

A second or any subsequent action on the merits in any application or patent involved in reexamination proceedings **should not be made final if it includes a rejection, on prior art not of record, of any claim amended to include limitations which should reasonably have been expected to be claimed.** See MPEP § 904 *et seq.* For example, one would reasonably expect that a rejection under 35 U.S.C. 112 for the reason of incompleteness would be replied to by an amendment supplying the omitted element.

1208.02 Reopening of Prosecution After Appeal

The examiner may, with approval from the supervisory patent examiner, reopen prosecution to enter a new ground of rejection after appellant's brief or reply brief has been filed. The Office action containing a

new ground of rejection may be made final if the new ground of rejection was (A) necessitated by amendment, or (B) based on information presented in an information disclosure statement under 37 CFR 1.97(c) where no statement under 37 CFR 1.97(e) was filed. See MPEP § 706.07(a).

Claim Rejections under 35 USC 102

2. Claims 1, 4, 5, 6, 8, and 16 stand rejected under 35 USC 102(b) as being anticipated by Romankiw et al. (US 4,219,854) and Church et al. (US 4,219,854).

Romankiw et al. disclose a thin film **inductive transducer** head including conductive coils (see Abstract). Romankiw et al. overcome problems in the prior art by providing a pole tip region of preselected constant relatively **narrow width having two magnetic layers** (i.e. thickness) (items 14 and 15; Figure 1A) that extend in a direction normal to the magnetic medium being read (item M) to improve reading of the magnetic medium (see col 1, lines 57-66; col 3, lines 22-38). Romankiw et al. disclose that the width of magnetic yoke layers 14 and 15 (Figure 1A) **underlying and overlying the interlocking spirals** (coils), should progressively increase in cross sectional area in steps (30) from point Y (see item Y, Figure 1A and item Y and layer 15 in Figure

1C).

The thin film **transducer head** of Romankiw et al. is formed of **two electrically separate interlocking spirals** (see Figure 1B (beginning at 10h, 10g), each **forming a four turn winding** to achieve a more balanced electrical center tap than would a single eight-turn spiral (col 2, lines 30-35).

Thus, Romankiw et al. fail to disclose several aspects of Applicants disclosed and claimed invention including:

"A method for fabricating an inductor structure **with an enhanced Q value**"

Romankiw et al. also fail to disclose:

forming over the substrate a planar spiral conductor layer comprising a single spiral to form a planar spiral inductor, wherein a successive series of loops within the planar spiral conductor layer is formed with a progressive and discontinuous variation **progressing from a center of said spiral defined by a first loop to a periphery** of said series of loops at least one of:

a series of progressive stepwise changes in linewidths to form a series of discrete linewidths for the successive series of loops; and

a series **of progressive stepwise changes in spacings** separating the successive series of loops."

Nowhere does Romankiw et al. discuss or suggest a variation of **either the linewidths or the spacings** between **the two interlocking coils** in the formation of a planar spiral transducer (see items 10a-10g) Figure 1A):

Applicants respectfully assert that Examiner is mistaken in asserting that Romankiw et al. shows a single spiral planar inductor or **that the successive series of loops within the planar spiral conductor layer depict** in Figure 1A "one discrete linewidth is shown closest to the transducing gap G with another increasing discrete linewidth shown in the series of loops furthest away from the transducing gap".

Rather, Examiner appears to be referring to the thickness of the yoke layers 14 and 15, underlying and overlying the coil (planar spiral items 10a-10g) which **yoke layers are made thinner** close to the transducing gap (G) formed by a nonmagnetic

conductor layer (10a'; Figure 1A) extending from outer coil portion (10a), between the magnetic conductor (yoke) layers 14 and 15 (col 2, lines 34-48) to the transducing gap (G). Neither the magnetic yoke layers 14, 15 nor the nonmagnetic conductor layer (10a'), which are taught **to vary in layer thickness** (not linewidth), form part of **the two interlocking planar coil structure of Romankiw et al.**

Nevertheless, Applicants do not claim what Examiner asserts Romankiw et al. discloses.

Thus, Romankiw et al. is clearly insufficient to anticipate Applicants disclosed and claimed invention.

Examiner asserts that Church et al. is cited as "extrinsic evidence "to merely show that a **single spiral planar conductor** forms a successive series of loops with a progressive and discontinuous variation in a series of linewidths of the successive series of loops where one discrete linewidth is shown closest to the transducing gap and another increasing discrete linewith shown in the series (sic) of loops furthest away from the transducing gap"

Church et al. disclose a completely different structure than the **two interlocking planar coil structure of Romankiw et al.** Church et al. disclose a **single spiral planar conductor** coil having an **elliptical pattern** where the coil turn portions (item 20, Figures 1 and 2; col 2,lines 17-42), by virtue of the elliptical pattern, **form progressively increasing linewidths from the area of the transducing gap (16; see Figure 1) (one periphery of the ellipse) toward the area at and beyond the back gap closure (toward the opposite periphery of the ellipse)** (18; see Figure 1 and 2) (see col 2, lines 57-62) **(i.e., progressively across the entire ellipse).** Church et al. teach that the elliptical configuration reduces a total length of the coil as **compared to rectangular or circular coils** and results in **less heat generation and has optimal heat dissipation** (col 2, lines 35-40).

Applicants respectfully assert that Examiner is improperly attempting to make an anticipation rejection by combining teachings in Church et al., who discuss the linewidths of a coil portion with Romankiw et al., who nowhere discuss the linewidths or variation of the linewidths of a coil structure having a different geometry.

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).
>
> **2131.01 Multiple Reference 35 U.S.C. 102 Rejections**
> Normally, only one reference should be used in making a rejection under 35 U.S.C. 102. However, a 35 U.S.C. 102 rejection over multiple references has been held to be proper when the extra references are cited to:
> (A) Prove the primary reference contains an "enabled disclosure;"
> (B) Explain the meaning of a term used in the primary reference; or
> (C) Show that a characteristic not disclosed in the reference is inherent.

It is clear that Church et al. cannot provide a definition of varying coil linewidths (planar spiral) for Romankiw et al. who do not discuss or suggest the linewidths of variation thereof in a completely different coil (planar spiral) structure geometry.

Nevertheless, even assuming *arguendo* that a proper 102(b) rejection has been made, the combination of the teachings of Church et al. and Romankiw et al. do not disclose or produce Applicants disclosed and claimed invention including:

"A method for fabricating an **inductor structure with an**

enhanced Q value"

The combined teachings further do not teach:

"forming over the substrate a planar spiral conductor layer comprising a single spiral to form a planar spiral inductor, wherein a successive series of loops within the planar spiral conductor layer is formed with a progressive and discontinuous variation **progressing from a center of said spiral defined by a first loop to a periphery** of said series of loops at least one of:

a series of progressive stepwise changes in linewidths to form a series of discrete linewidths for the successive series of loops; and

a series **of progressive stepwise changes in spacings** separating the successive series of loops."

Thus, the references, alone or in combination, are clearly inadequate to anticipate Applicants disclosed and claimed invention.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v.*

Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

"The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claim Rejections under 35 USC 103

2. Claim 7 stands rejected under 35 USC 103(a) as being unpatentable over Romankiw et al. and Church, in view of Ohmura et al. (US 4,392,013)

Applicants reiterate the comments made above with respect to Romankiw et al. and Church.

Even assuming *arguendo* a proper motivation for combination, the fact that Ohmura et al. further teaches thin film conductor planar coil **layer formed having a thickness** of for about 0.1 to about 10 microns (see Abstract; col 1, lines 65-col 2, lines 8) and then thickening the conductor coil **layer** by electroplating a further conductor layer thereon from 34 to 190 microns, does not further help Examiner in producing Applicants disclosed and claimed invention.

"Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).*

Conclusion

The cited references, alone or in combination, do not produce Applicants disclosed and claimed invention, and therefore fail to make out a *prima facie* case of anticipation or obviousness with respect to both Applicants independent and dependent claims.

Moreover, none of the cited references disclose a method or structure that recognizes or overcomes the problem that Applicants have recognized and solved by their disclosed and claimed invention:

"A method for fabricating an inductor structure with an **enhanced Q value**"

The Claims have been amended to further clarify Applicants invention as disclosed including as interpreted by the Board of Patent Appeals and Interferences. A favorable reconsideration of Applicants' claims is respectfully requested.

Based on the foregoing, Applicants respectfully submit that the Claims are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

In the event that the present invention as claimed is not in condition for allowance for any reason, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,

Tung & Associates

Randy W. Tung
Reg. No. 31,311
Telephone: (248) 540-4040